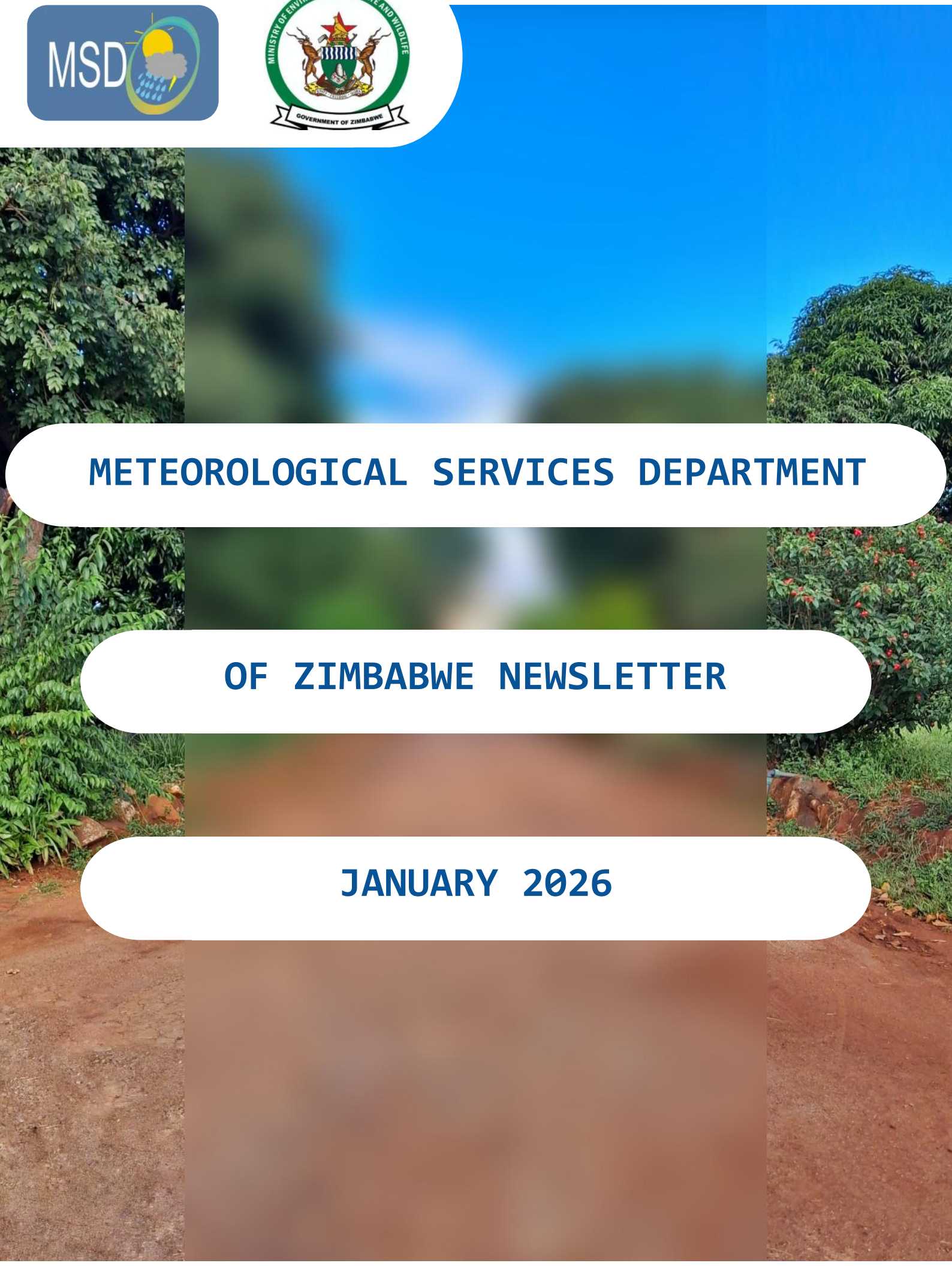


METEOROLOGICAL SERVICES DEPARTMENT

OF ZIMBABWE NEWSLETTER

JANUARY 2026

Minimizing Risk Through Science

CONTENTS

The Director's Remarks

The first month of 2026 marked an important period for the Meteorological Services Department and its partners, as several strategic initiatives were successfully implemented in support of improved weather, climate, and environmental services. These activities reflected the Department's continued commitment to strengthening technical capacity, advancing climate services, and supporting national and regional development priorities through science-based information.

One of the key highlights of the period was the MTG Satellite Application Training held in Pretoria, South Africa, which brought together meteorologists from across the African continent. This training strengthened operational skills in the use of next-generation satellite data for weather monitoring, now-casting, and early warning. Participants acquired practical competencies in interpreting satellite imagery and integrating satellite products into daily forecasting operations. This directly contributes to improved service delivery, particularly in severe weather detection and impact-based forecasting.

At national level, significant progress was made in advancing climate services through the Product Development and Tailoring Training Programme conducted in Harare under the Green Climate Fund project. The programme marked a critical transition from a primary focus on satellite data bias correction towards the development of operational, decision-ready climate, hydrological, and agricultural products. Staff were equipped with tools to generate climate trends, seasonal indicators, drought monitoring products, soil moisture assessments, and integrated dashboards. These products are essential for supporting evidence-based planning in agriculture, water resources management, disaster risk reduction, and climate change adaptation.

The Department also actively participated in regional climate processes, notably the Southern Africa Climate Expert Meeting and the Thirty-Second Southern Africa Regional Climate Outlook Forum. Through these platforms, national experts contributed to the development of a consensus seasonal climate outlook for the Southern African region. These regional forecasts, which were downscaled to national level, continue to play a central role in guiding sectoral planning and early warning systems across the region.

In parallel, the Department supported national environmental sustainability efforts through participation in the nationwide tree planting programme coordinated by the Ministry of Environment, Climate and Wildlife. The ministerial tree planting event held in Bulawayo aligned with broader national objectives on ecosystem restoration, climate resilience, and sustainable livelihoods. Such initiatives reinforce the importance of integrating climate services with environmental management and community-based action.

Collectively, the activities featured in this newsletter demonstrate the growing role of the Meteorological Services Department as a provider of integrated climate intelligence. From satellite-based forecasting and regional climate outlooks to decision-ready products and environmental stewardship, the Department continues to position itself at the centre of national and regional efforts to build climate resilience. These achievements reflect strong collaboration with regional institutions, international partners, and national stakeholders, and they underscore our shared commitment to delivering reliable, relevant, and actionable climate information for sustainable development.

Mrs. Rebecca Manzou, Director, Meteorological Services Department

January 2026

Southern African Climate Experts Forecast the 2026 Seasonal Outlook

Charity Gororo & Tapiwa Masawi

The Climate Expert Meeting (CEM) is a key capacity-building platform that supports the development of seasonal climate predictions for the Southern African region. These regional forecasts are downscaled to national level and form the basis of the Regional Climate Outlook presented at the Southern Africa Regional Climate Outlook Forum (SARCOF), as well as the National Climate Outlooks issued during National Climate Outlook Forums (NACOFs). The CEM is convened twice a year by the Southern African Development Community Climate Services Centre (SADC CSC) and plays a central role in generating and updating seasonal forecasts, first in August or September and again in December or January.

SARCOF 32 Delegates Posing for a Group Photo

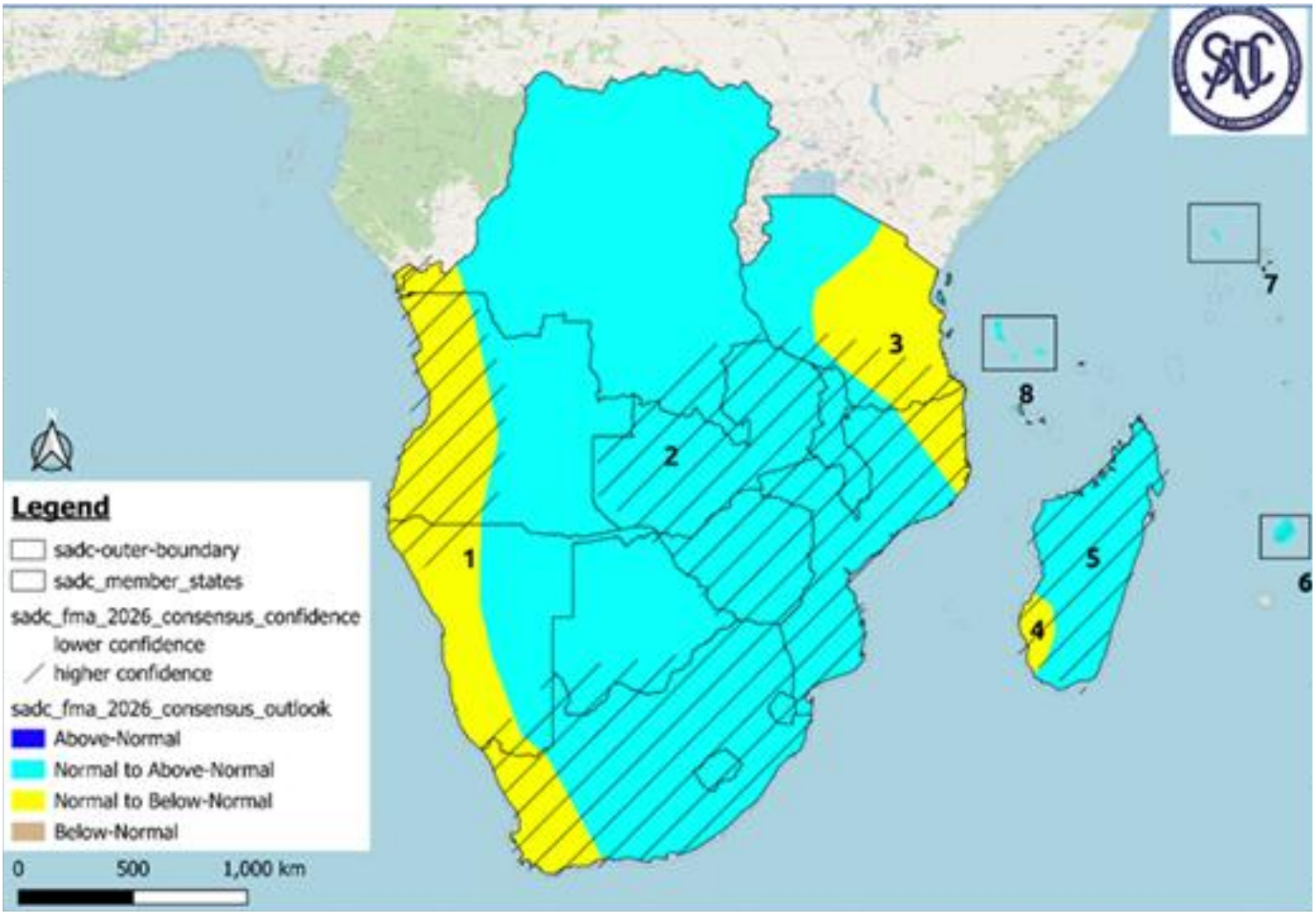
Seasonal forecasts are critical for informed decision-making in key socio-economic sectors such as agriculture, energy, water resources management, health, and disaster risk reduction. They also support the early warning community by providing information needed to anticipate the impacts of climate variability. By strengthening the forecasting capacity of National Meteorological Services, the CEM enables the production of sector-specific products, supports anticipatory action, and improves monitoring of floods, droughts, and extreme events. Building on the first seasonal forecast issued at SARCOF 31 in Lusaka, Zambia, the SADC CSC organized CEM 32 in two phases to prepare an updated outlook. The process started with a virtual session held from 19 to 23 January 2026, during which member states reviewed the October to November to December rainfall performance and sub-seasonal patterns. Country teams then developed forecast syntheses for their respective nations.

This was followed by a physical Climate Expert Meeting in Mbabane, Eswatini, from 28 to 30 January 2026. During this meeting, experts presented their national forecast syntheses, reviewed global and regional climate model outputs, and worked together to produce a consensus forecast for the Southern African region. Immediately after the CEM, the Thirty-Second Southern Africa Regional Climate Outlook Forum (SARCOF 32) was held at the same venue. Climate forecasters from SADC National Meteorological and Hydrological Services, together with the SADC Climate Services Centre and supported by international partners including ACMAD, ECMWF, NOAA, IRI, and other Global Producing Centers, finalized a consensus seasonal outlook.

 # SARCOF 32

Southern African Climate Experts Forecast the 2026 Seasonal Outlook

[Continued]



The 2026 February, March & April Seasonal Outlook for Precipitation

Zone 1: Southern western tip of DRC, western coastal Angola, western coastal Namibia, and western South Africa.
Normal rainfall with increased chances of below-normal rainfall

Zone 2: Most of DRC, eastern most of Angola, most of eastern Namibia, Zambia, western Tanzania, Malawi, Zimbabwe, most of Mozambique, Eswatini, Lesotho, and most of South Africa.
Normal rainfall with increased chances of above-normal rainfall

Zone 3: Most of eastern Tanzania and north-eastern tip of Mozambique.
Normal rainfall with increased chances of below-normal rainfall

Zone 4: Southwestern tip of Madagascar.
Normal rainfall with increased chances of below-normal rainfall

Zone 5: Most of Madagascar.
Normal rainfall with increased chances of above-normal rainfall

Zone 6: Mauritius.
Normal rainfall with increased chances of above-normal rainfall

Zone 7: Seychelles.
Normal rainfall with increased chances of above-normal rainfall

Zone 8: Comoros.
Normal rainfall with increased chances of above-normal rainfall

Growing a Greener Zimbabwe Through the National Tree Planting Drive

Guide Makombo

The Ministry of Environment, Climate and Wildlife continues to roll out its nationwide tree planting programme, with Bulawayo hosting a ministerial tree planting event from 28 to 31 January 2026. The initiative formed part of a broader national campaign aimed at planting 17 million trees of different species across the country during the 2025–2026 rainy season.

Participants at the Tree Planting Event in Bulawayo posing for a Photo With Ambassador T.T. Chifamba

The event, held at Mncumbatha Secondary School, was conducted under the theme *"Trees and Forests for Ecosystem Restoration and Improved Livelihoods."* It brought together government officials, local communities, and learners in a collective effort to promote environmental sustainability and climate resilience. Speaking at the event, the Permanent Secretary in the Ministry of Environment, Climate and Wildlife, Ambassador Tadeous T. Chifamba, underscored the importance of increasing national forest cover as a key pillar of ecosystem restoration and sustainable development, in line with the National Development Strategy 2.

"Forests contribute directly and indirectly to livelihoods, and it is our responsibility to protect and utilise them wisely," he said.

Ambassador Chifamba highlighted that tree planting played a critical role in driving economic development, reducing environmental degradation, and encouraging a culture of sustainability, particularly among young people. He noted that involving schools in such initiatives helped instil environmental awareness from an early age and strengthened long-term conservation efforts. The ministry also reiterated its commitment to the beautification of cities and towns, as part of the Presidential Tree Planting Programme launched by His Excellency, President Cde. E.D. Mnangagwa, during the national Tree Planting Day commemorations in Harare in 2022. Beyond environmental benefits, the tree planting drive was expected to make a significant contribution towards Zimbabwe's attainment of the Sustainable Development Goals, particularly those related to climate action, sustainable cities, life on land, and improved livelihoods for communities.

Quiz Challenge

1. What is the study of weather called?
2. What term describes high temperature?
3. Who created this Newsletter?
4. What type of storm produces thunder?
5. What do we call drops of water that fall from the sky?
6. What is a strong gust of wind called?
7. What blows and moves the air around us?
8. What is a line of equal pressure on a weather map called?
9. What is the name of the international meteorology body?
10. What climate pattern is associated with severe droughts and heat-waves?
11. What term refers to the measurement of humidity?
12. What do we call condensation that forms at ground level?
13. What temperature scale is commonly used in most countries around the world?

Gale, Celsius, Meteorology, Fog, MSD, Wind, El Niño, Rain, Isobar, Heat, WMO, Thunder, Dewpoint

Advancing Climate Services in Zimbabwe: From Satellite Debiasing to Decision-Ready Products

Gamuchirai Vhumisai

The Meteorological Services Department (MSD) of Zimbabwe is working on a UNDP Green Climate Fund Project, whose main theme is "Building Climate Resilience for Vulnerable Agricultural Livelihoods." The training was second training was held at the Jameson Hotel in Harare and brought together participants from MSD, the Zimbabwe National Water Authority (ZINWA), AGRITEX, and the GCF Project Management Unit. The programme marked a shift from a primary focus on satellite data debiasing toward the production of operational, decision-ready climate, hydrological, and agricultural products. The theme of the training was Transforming Bias-Corrected Satellite-Gauge Data Into Operational Climate, Hydrological and Agricultural Products. This workshop built directly on the previous debiasing sessions, where participants were introduced to a range of satellite datasets and trained on bias correction techniques. The focus of this second phase was on converting corrected datasets into practical tools that can be used for climate services, water management, and agricultural planning.

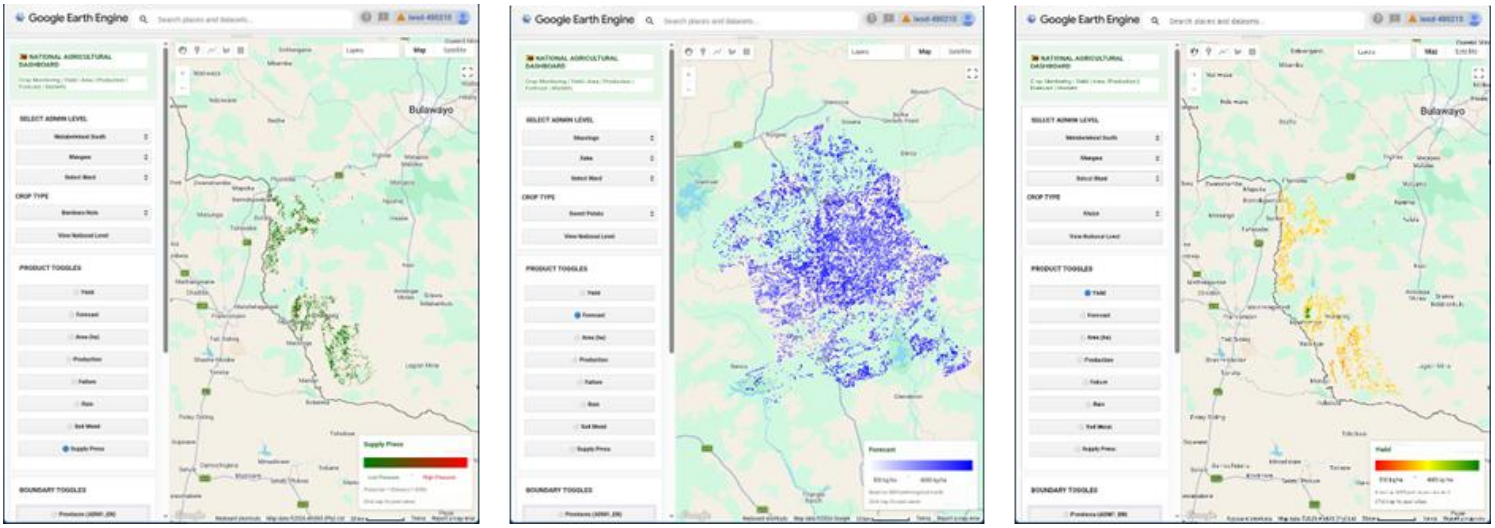
GCF Satellite Debiasing Training Participants

The training was facilitated by IWSD, with facilitation provided by Mr. L. Chikwiramakomo, Dr. W. Gumindoga, Mr. D. Rwasoka, and Prof. T. Mushore. The programme was structured so that each day focused on a specific thematic area, while maintaining a logical progression across the week. The first day focused on climate trends and variability products, introducing methods for analysing long-term rainfall and temperature behaviour. The second day covered seasonal metrics, including rainfall onset, cessation, and Length of Growing Period indicators. The third day addressed drought monitoring, extreme climate indices, and early warning products. The fourth day focused on soil moisture, irrigation, and reservoir and surface water products, while the final day concentrated on yield estimation, integrated products, and data fusion dashboards.

Using bias-corrected datasets such as CHIRPS, and ERA5-Land, participants applied statistical tools including the Mann-Kendall Trend Test and Sen's Slope estimator to generate rainfall and temperature trend maps with significance diagnostics. These products strengthen climate change analysis, support interpretation of seasonal forecasts, and provide useful inputs for irrigation planning and infrastructure development. Seasonal agricultural monitoring was further enhanced through the generation of onset, cessation, dry spell, and growing period statistics, which can be used to inform planting advisories, crop selection, and irrigation scheduling at district and ward levels.

Drought monitoring capacity was strengthened through computation of the Standardized Precipitation Index, ETCCDI extreme climate indices, and drought return-period analysis. These tools contribute to improved national early warning systems and climate risk assessments. The programme also advanced operational soil moisture monitoring, irrigation trigger indicators, and reservoir storage assessment tools. Prototype dashboards were developed to integrate rainfall, soil moisture, vegetation indices, and yield estimation outputs, supporting coordinated decision-making across climate, water, and agricultural sectors.

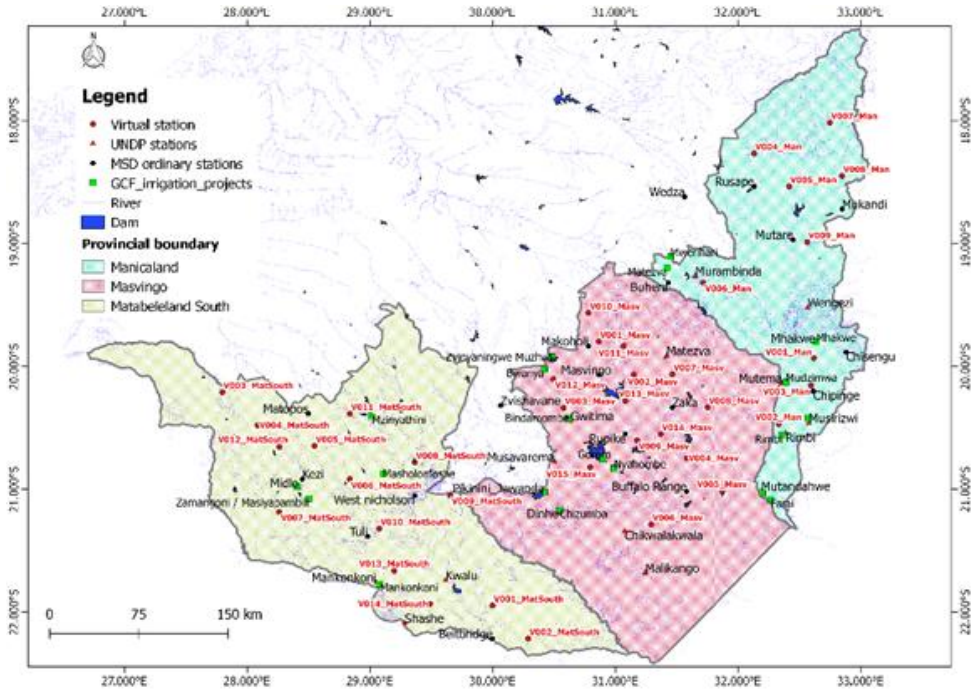
Advancing Climate Services in Zimbabwe: From Satellite Debiasing to Decision-Ready Products



Google Earth Engine Dashboard Showing Different Agricultural and Hydrological Information

One of the most notable products developed during the training was the generation of virtual rainfall stations. These are not physical stations but are instead derived by applying bias correction factors that account for environmental influences such as local climatology, elevation, and proximity to water bodies. Virtual stations help close data gaps in areas that do not have physical weather stations, improving spatial coverage for analysis and decision-making. Google Earth Engine dashboards were used to generate and export these stations, allowing participants to visualise and manage them alongside existing physical reference stations.

Most of the processing work during the training was conducted using Google Earth Engine, which provides access to a wide range of satellite datasets and cloud-based computing capabilities. This enabled participants to perform computationally intensive tasks without relying on high-end local hardware. However, progress was partly limited by the constraints of free Google Cloud accounts, highlighting the need for institutional investment in subscription -based access for sustained operational use. Participants also received practical exposure to Python for generating selected products, strengthening their ability to develop automated and reproducible workflows. The training significantly enhanced technical capacity and institutional collaboration while laying the foundation for integrating these products into routine national operations. By shifting the focus from bias correction to product development and user relevance, the programme represents an important step toward strengthening Zimbabwe's climate resilience through science-based, decision-ready information services.



A Map Showing Virtual Gridded Stations in Matabeleland South, Masvingo, and Manicaland

Eyes in the Sky: Harnessing Next-Generation Satellites for Better Weather Forecasts

Moven Manjowe

From 19 to 23 January 2026, meteorologists from across the African continent gathered in Pretoria for the MTG Satellite Application Training, a face-to-face course organised by EUMETSAT in partnership with the South African Weather Service (SAWS) Regional Training Centre (RTC). The training was designed to strengthen the practical use of meteorological satellite data and improve the quality and reliability of operational weather forecasting in Africa. The course brought together forecasters from Congo Brazzaville, Zambia, Zimbabwe, Namibia, Botswana, Eswatini, Lesotho, Mozambique, and South Africa as the host country. Delivered in English, the programme focused on real-world operational applications, ensuring that participants could immediately apply what they learned in their day-to-day forecasting work.

MSD Training School Officer Mr. Moven Manjowe Receiving His Training Certificate

Throughout the week, participants developed key competencies in satellite meteorology. They learned how to analyse and interpret satellite data for monitoring and detecting severe weather events, including the use of nowcasting tools. A strong emphasis was placed on understanding and interpreting MSG and MTG RGB satellite imagery, which is increasingly important for modern forecasting. The training also included hands-on sessions with weather display software, giving participants practical experience in visualising and working with satellite products. In addition, participants were guided on how to effectively integrate satellite data into the full operational forecasting process.

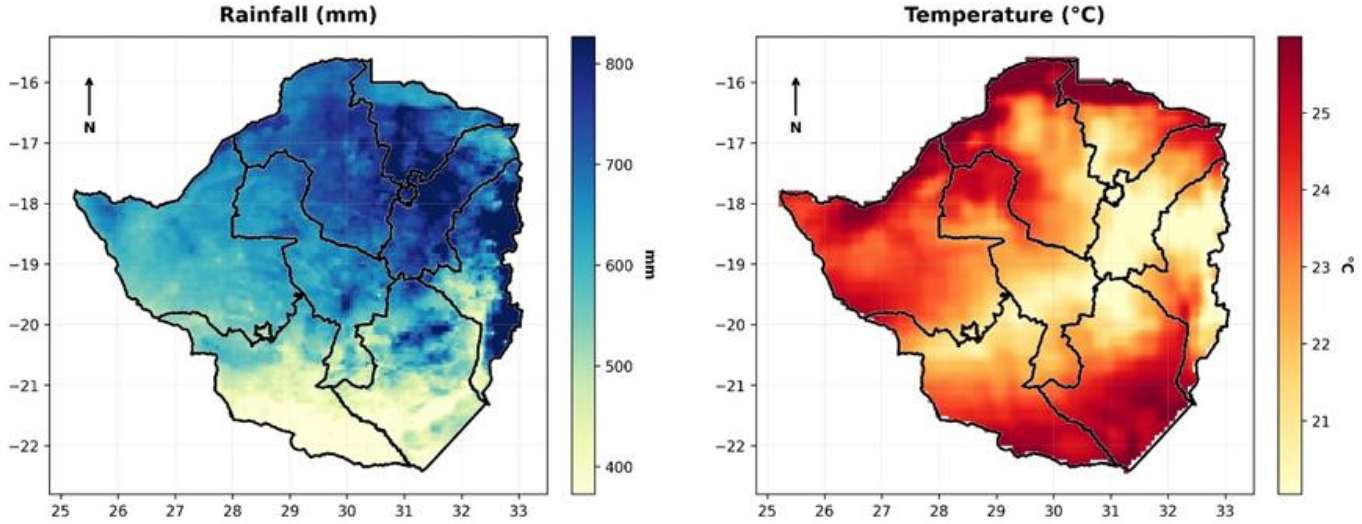
The training was delivered by a team of experts from SAWS and the Kenya RTC, supported by specialists from EUMETSAT. This mix of regional and international expertise ensured that the content was both technically strong and well aligned with the operational realities faced by African meteorological services. One of the key outcomes of the training was the immediate impact on capacity building. Participants were able to directly apply the skills and knowledge gained by contributing to ongoing training initiatives, including the BIP-MT Senior Level Online Training. This ensured that the benefits of the course extended beyond the individuals who attended, helping to strengthen institutional capacity and knowledge sharing within national meteorological services.

Overall, the MTG Satellite Application Training marked an important step in enhancing the effective use of satellite data across Africa, supporting better forecasting, improved early warning systems, and more resilient weather services for the region.

Two Variables, One Vision: The Power of Bivariate Maps

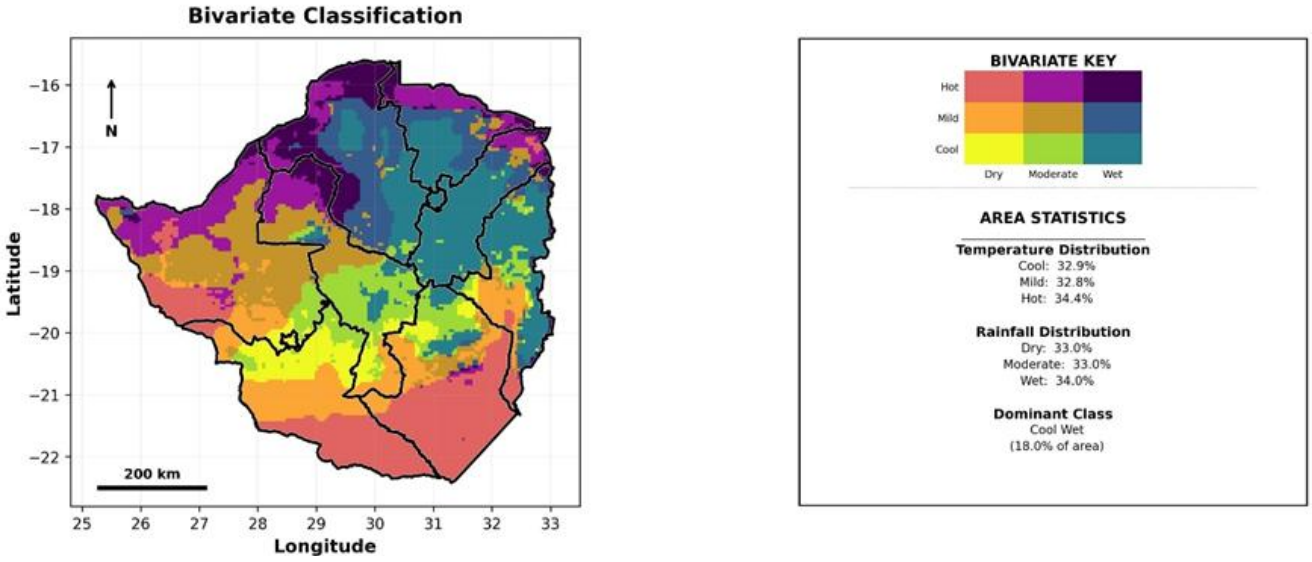
Tinetariro Chikati

Have you ever wished you could see the relationship between two geographic patterns in a single, coherent image? That is the power of a bivariate map. By blending two distinct variables, like rainfall and temperature into one visual using a two-dimensional colour scheme, these maps reveal complex spatial relationships that would be difficult to discern from two separate images.



Zimbabwe Wet Season Climatology | Oct - Apr | 1991 – 2020

Creating such a map requires careful preparation to ensure the underlying data align perfectly. In a recent small project, Zimbabwe's wet season climate patterns were visualised by combining CHIRPS monthly averaged rainfall data with ERA5 average temperature data for October up to July. Initially, these datasets were not compatible, as they differed in spatial resolution. The first critical step was to align them on a common grid. This involved resampling the coarser temperature data to match the finer resolution of the rainfall dataset and ensuring both layers shared the same geographic extent and coordinate reference system. With the datasets now spatially aligned, they were each classified into three simple categories based on percentiles breaks at 0-33, 33-66 and 66-100%. The three percentile breaks where classified as low, medium, and high for rainfall, and cool, mild, and hot for temperature. By overlaying these classified layers, each map location received a unique colour code corresponding to its combined rainfall and temperature category. The result was a single map with a nine class legend that tells a unified story about the climate's dual character.



Zimbabwe Bivariate Temperature and Rainfall Classification Map

Bivariate maps like this are more than just visually striking. They are analytical tools that facilitate immediate, intuitive insight into how two forces interact across a landscape. This makes them invaluable for evidence-based communication and decision-making in fields ranging from environmental science to public health and urban planning, providing a holistic view of interconnected geographic phenomena.

Quiz Solutions

1. What is the study of weather called? *(Meteorology)*
2. What term describes high temperature? *(Heat)*
3. Who created this Newsletter? *(MSD– Meteorological Services Department of Zimbabwe)*
4. What type of storm produces thunder? *(Thunderstorm)*
5. What do we call drops of water that fall from the sky? *(Rain)*
6. What is a strong gust of wind called? *(Gale)*
7. What blows and moves the air around us? *(Wind)*
8. What is a line of equal pressure on a weather map called? *(Isobar)*
9. What is the name of the international meteorology body? *(WMO)*
10. What climate pattern is associated with severe droughts and heat-waves? *(El-Nino)*
11. What term refers to the measurement of humidity? *(Dewpoint)*
12. What do we call condensation that forms at ground level? *(Fog)*
13. What temperature scale is commonly used in most countries around the world? *(Celsius)*

ZIMBABWE

METEOROLOGICAL SERVICES DEPARTMENT

'Where Science Meets The Sky'

MSD

Vision

A world class provider of meteorological, climatological and seismological products and services by 2025.

Mission Statement

To provide customer and stakeholder driven quality seismological, weather and climate services for socio economic development.

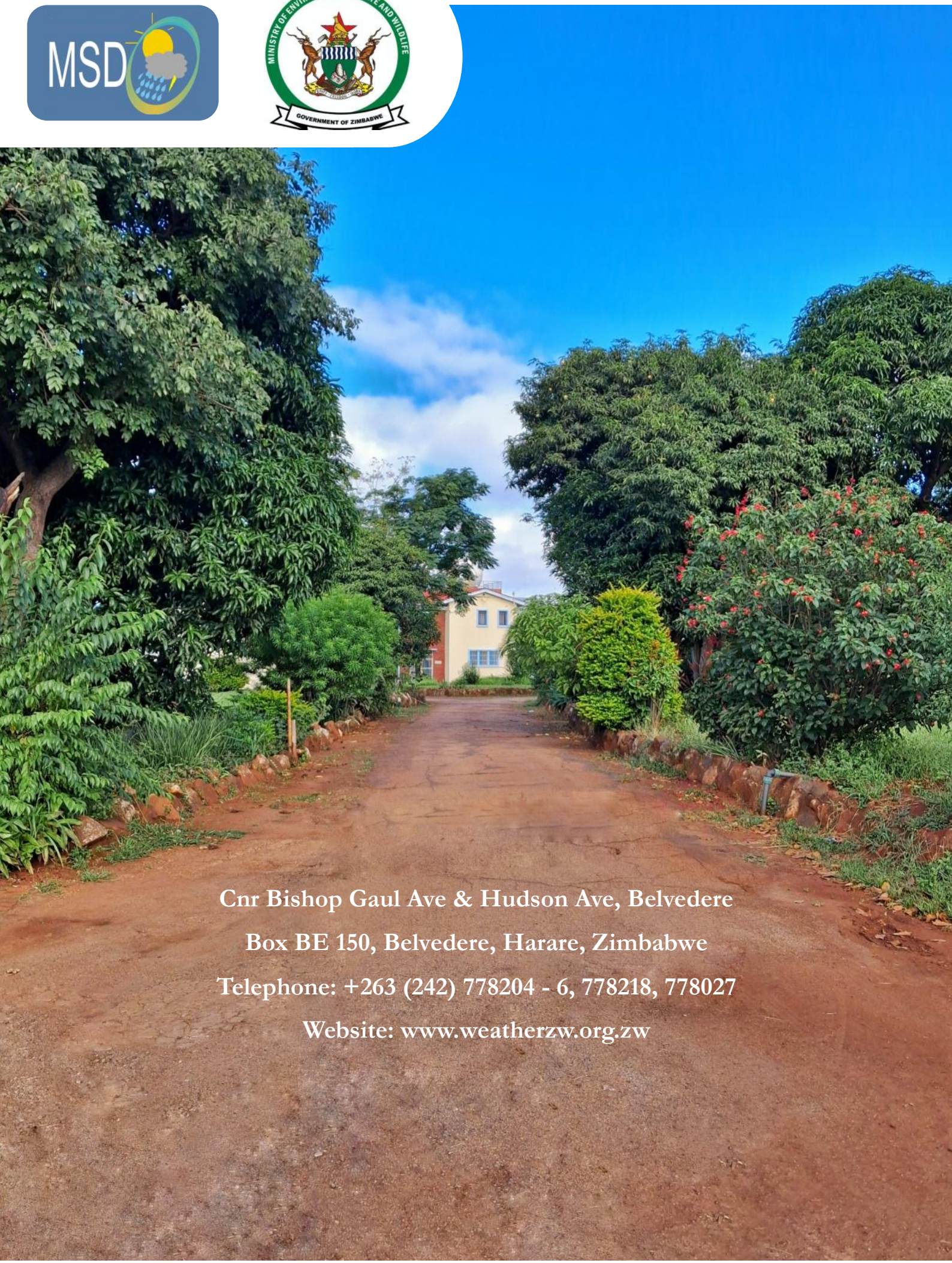
Core Values

- **Teamwork:** We value unity of purpose
- **Equality:** We offer equal status, rights and opportunities to all
- **Customer focus:** We prioritize and address customer needs.
- **Transparency:** We are open to scrutiny
- **Integrity:** We have strong moral principles
- **Creativity:** We focus on innovation and continuous improvement.
- **Accountability:** We take responsibility for one's own actions.

facebook.com/MSDZIM/

x.com/MSDZIM

Facebook.com/MSDZIM



Cnr Bishop Gaul Ave & Hudson Ave, Belvedere

Box BE 150, Belvedere, Harare, Zimbabwe

Telephone: +263 (242) 778204 - 6, 778218, 778027

Website: www.weatherzw.org.zw

Minimizing Risk Through Science